Operator's service manual

VIMEK 610

Revision A

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Service and maintenance

Maintenance 3
Safety 3
General 3
Tightening torque 4
Welding 4

1 Lubrication points 5
1.1 Centre link 5
1.2 Stabilisation cylinder 6
1.3 Steering cylinder 6
1.4 Transmission shaft 7
1.5 Mechanism, drive rollers 7
1.6 Wheel bearings, trailer section 7
1.7 Rotator/Link 8
1.8 Grapple 8
1.9 Tiltable grapple 8
1.10 Crane 9

2 Bolted joint 10
2.1 Wheels, cab section 10
2.2 Wheel, trailer section 10
2.3 Crane foot 11
2.4 Centre link 11
2.5 Rear section gearbox 12
2.6 Drive shaft 12
2.7 K axle 12
2.8 Trailer section 13
2.9 Locking wheel axle, trailer section 13
2.10 Bogie 14

3 Battery 15
3.1 General 15
3.2 Charging 15
3.3 Battery change 15

4 Engine 15
4.1 Follow the service instructions and intervals in the engine instruction manual 15
4.2 Adjusting the valves 15

5 Fluids 16
5.1 General 16
5.2 Coolant 16
5.3 Windscreen washer fluid 16

6 Oils 17
6.1 Check the engine oil 17
6.2 Change the engine oil 17
6.3 Hydraulic oil check/change 17
6.4 Check the hydraulic oil level 17
6.5 Gearbox oil check 18
6.6 Gearbox oil change: 18
6.7 Drive shaft oil, trailer section 19
6.8 Planetary gear housing oil 20

7 Filter 21
7.1 Engine oil filter 21
7.2 Filter, hydraulic oil cooler. 21
7.3 Filter hub sides 21
7.4 Hydraulic oil filter check 21
7.5 Breather filter check 22
7.6 Fine filter circuit check. 22
7.7 Filter, fine filter circuit, change. 22
7.8 Diesel filter change 23
7.9 Checking and cleaning engine cooler 23
7.10 Check air filter and coarse filter air can. 24
7.11 Cab filter 24

8 Brake system 25
8.1 Driving brake 25
8.2 Parking brake 26
8.3 Trailer brake 26
8.4 Venting/oil change brake system: 26

9 Tyres 27
9.1 Damage 27
9.2 Air pressure 27
9.3 Wheel jamming pressure 27

10 Safety equipment 28
10.1 Fire extinguisher 28
10.2 Sprinkler equipment 28
10.3 Safety belt 28

11 Diesel heater 28
11.1 General 28

12 Maintenance schedule 29
12.1 Daily inspection 29
12.2 Maintenance schedule 30

Maintenance

Safety

Observe all safety provisions in the machine's instruction manual.
Particularly important information in this service manual is marked with the following symbols:

Risk of personal injury or damage to property

Immediately stop any work.

Important information

General

In order for the machine to function problem-free over a long lifespan, the service and maintenance must be carried out according to the instructions in this service manual.
The machine must be regularly lubricated according to the chapter "Maintenance Schedule".

Difficult circumstances can necessitate a shorter service interval.

Be observant for any wear and tear, and for any situations that could lead to machine damage.

Hydraulic components are sensitive to contamination.
Observe strict cleanliness when servicing hydraulic components.

Clean any leaks immediately, to avoid damage to the surroundings.
Spent oil, coolant, battery fluid, etc must be taken to the nearest recycling/deposit centre.
Use environmentally-friendly diesel.

Always turn off the engine during all service and maintenance work on the machine.

Ensure that the motor cannot, in any circumstances, be accidentally turned on again.

Secure machine parts during maintenance - risk of serious crushing injury.

Ensure that the crane and the machine are situated in a position where no parts of the crane or machine can move - risk of serious personal injury.

Faults that are discovered must be resolved before continued driving, if there is a risk of personal injury or damage to property!

If in doubt of the appropriate action for daily inspection, damage or larger repairs, contact your VIMEK dealer or service organisation.

Tightening torque

Tightening torque in Nm

		Resistance class			
		4.6	**8.8**	**10.9**	**12.9**
Dimensions	**M6**	3.7	9.8	14	17
	M8	8.9	24	33	40
	M10	17	47	65	79
	M12	30	81	114	136
	M14	48	128	181	217
	M16	74	197	277	333
	M18	103	275	386	463
	M20	144	385	541	649
	M24	249	665	935	1120

Welding

Welding work on machines that are under warranty shall be carried out according to VIMEK's instructions.

When welding the machine or crane, the following measures must be taken:

- Disconnect the battery's + terminal.
- Ensure that there is functioning fire fighting equipment available.
- Clean sufficiently around the welding area so as to eliminate the risk of fire.
- Connect the earthing cable as close to the welding location as possible.
- Disconnect steering system

For repair welding of the drive belt and chains, see separate manual.

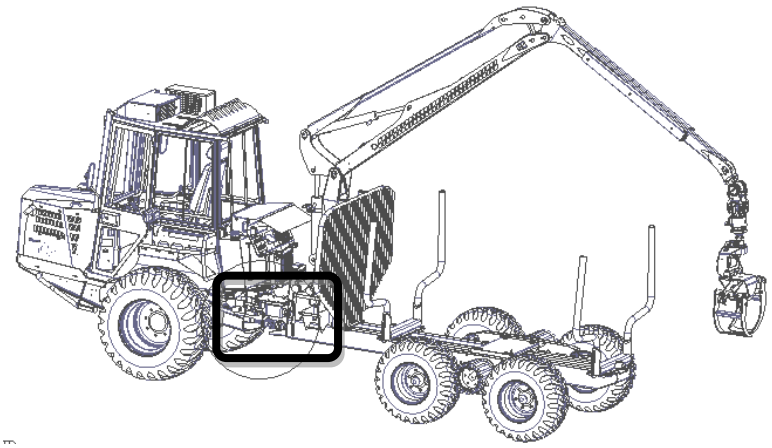
1 Lubrication points

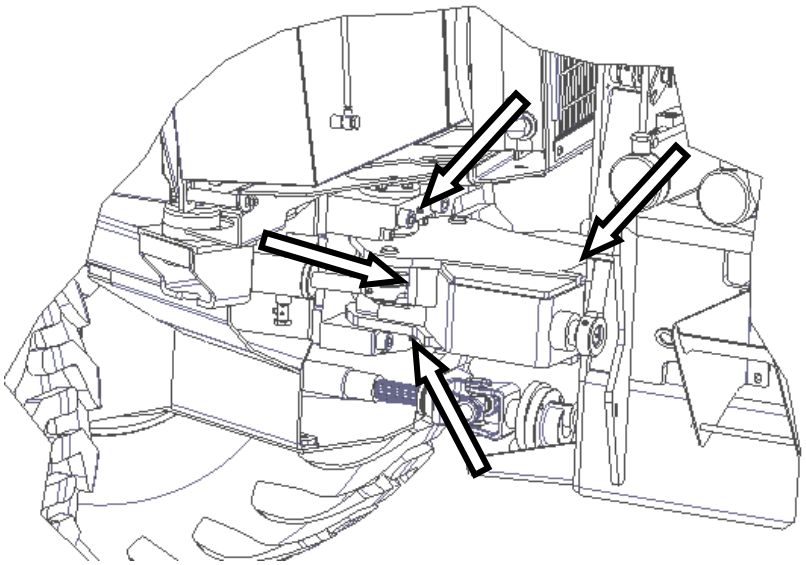
As lubricant, we recommend a grease designed for slide bearings in work machines.
The grease must be suitable for high pressure, impact loading and must maintain its lubrication capacities in temperatures from -25°C to +50°C.
Use a lithium grease fortified with EP additive.
Take the load off the cables before lubricating.
Pump until grease emerges, about 2-3 pumps at each lubrication nipple.
If it is difficult to insert the grease, it can help to move the cable backwards and forwards.

Always replace sealed or broken grease nipples.

1.1 Centre link

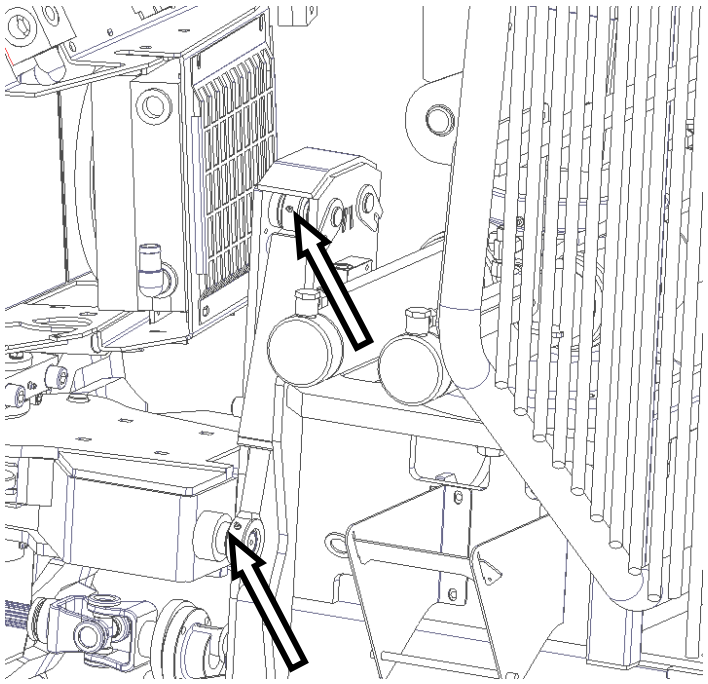
- 4 lubrication points





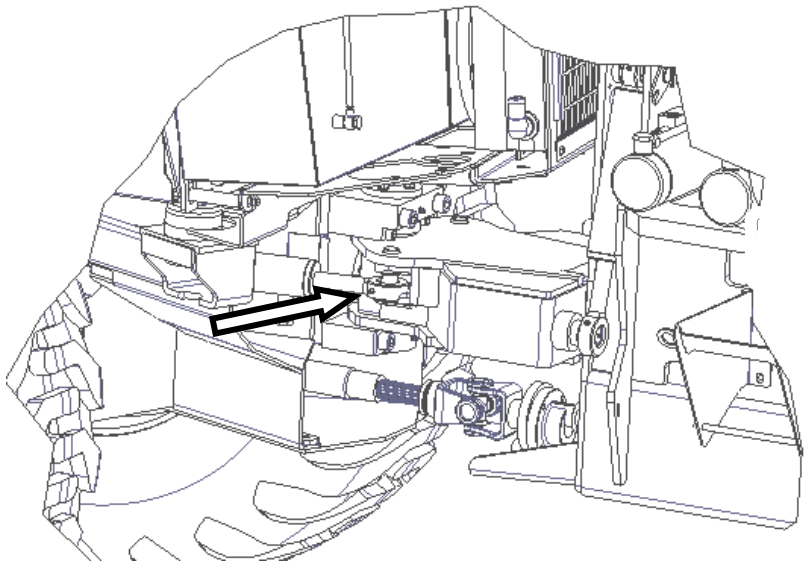
1.2 Stabilisation cylinder

- 2+2 lubrication points



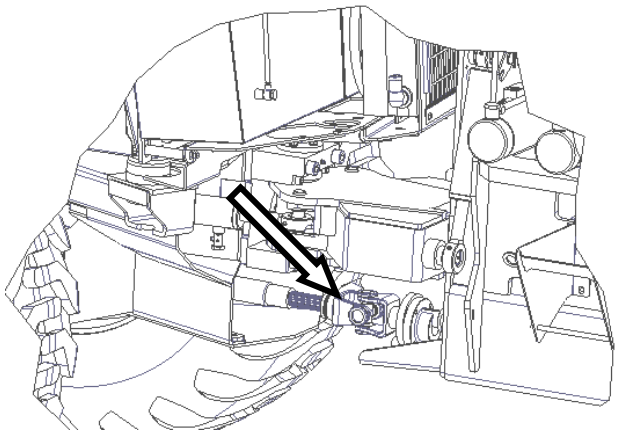
1.3 Steering cylinder

- 2+2 lubrication points



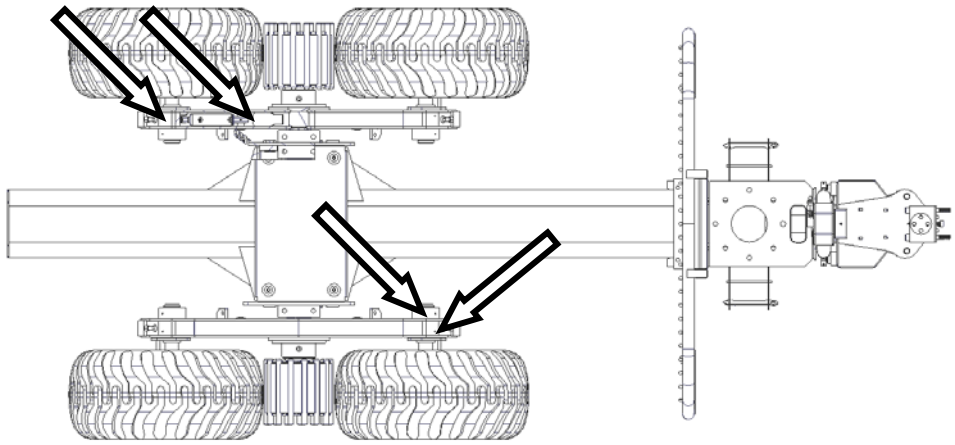
1.4 Transmission shaft

- 6 lubrication points



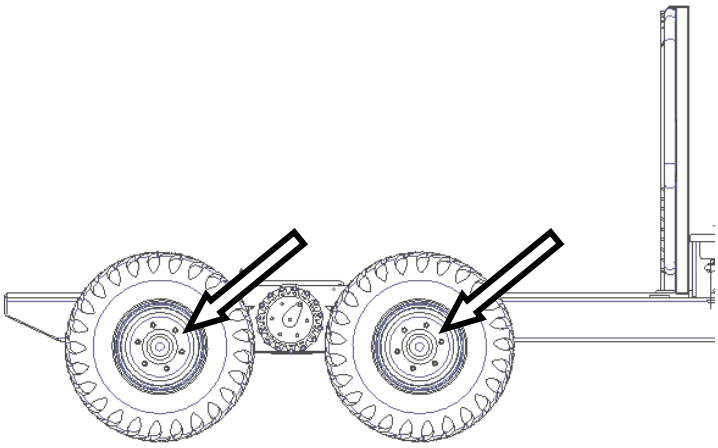
1.5 Mechanism, drive rollers

- 4 lubrication points (4x).



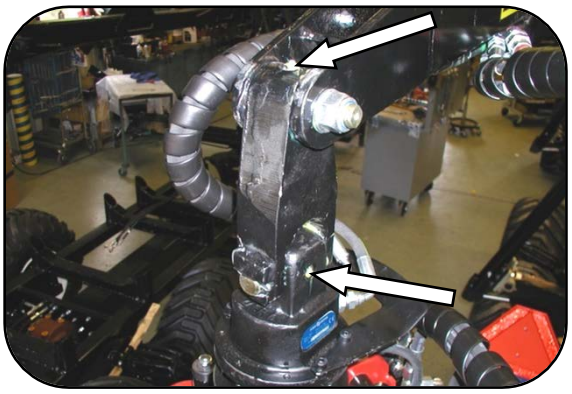
1.6 Wheel bearings, trailer section

- 2+2 lubrication points.



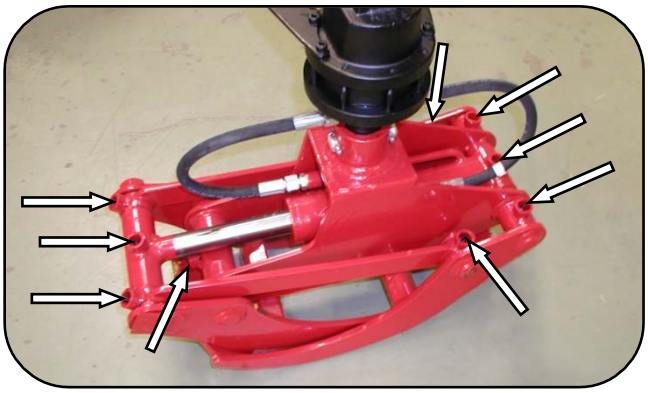
1.7 Rotator/Link

- 2 lubrication points (note, not the brake link)



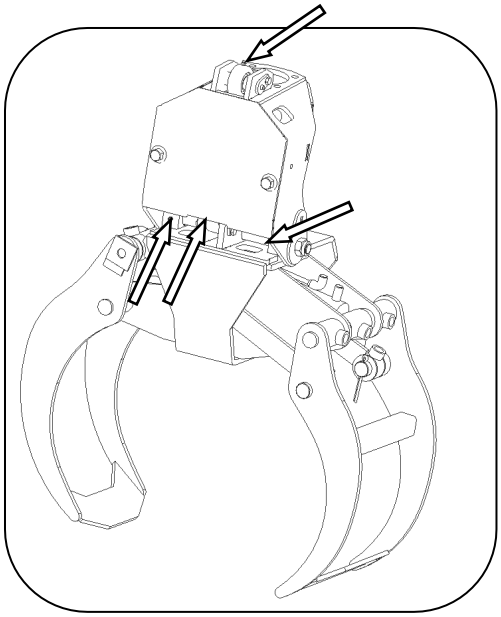
1.8 Grapple

- 9 lubrication points



1.9 Tiltable grapple

- 9 points as on the grapple + 4 lubrication points = 13 lubrication points.



1.10 Crane

See separate manual.

2 Bolted joint

See section "Tightening torque" for the correct torque. When checking the bolted joint, to prevent stretching the bolts, do not apply the full tightening torque.

2.1 Wheels, cab section

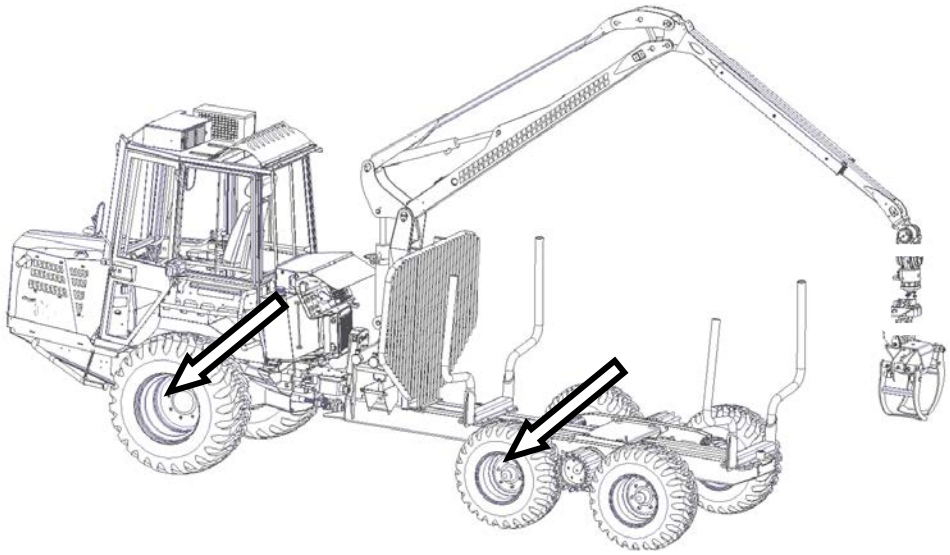
Check:

- 4 pcs Wheel bolts (2x).

2.2 Wheel, trailer section

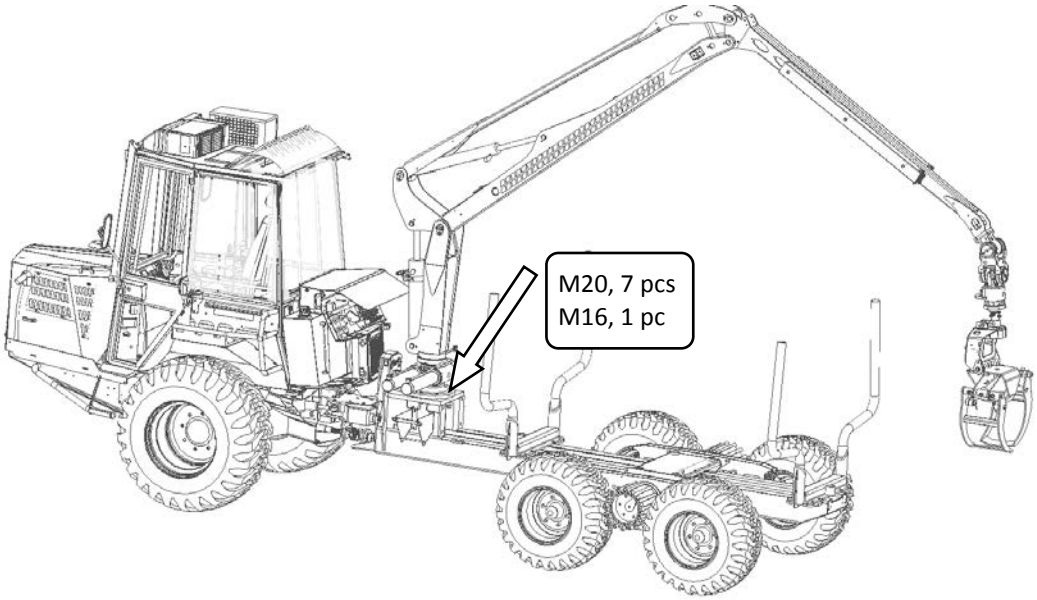
Check:

- 6 pcs Wheel bolts (4x).



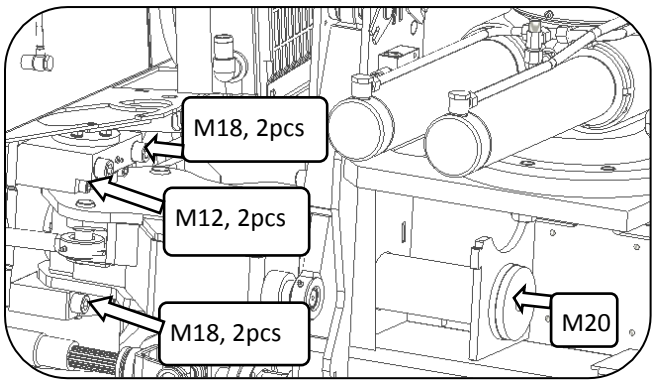
2.3 Crane foot

- 7 pcs. M20
- 1 pcs. M16



2.4 Centre link

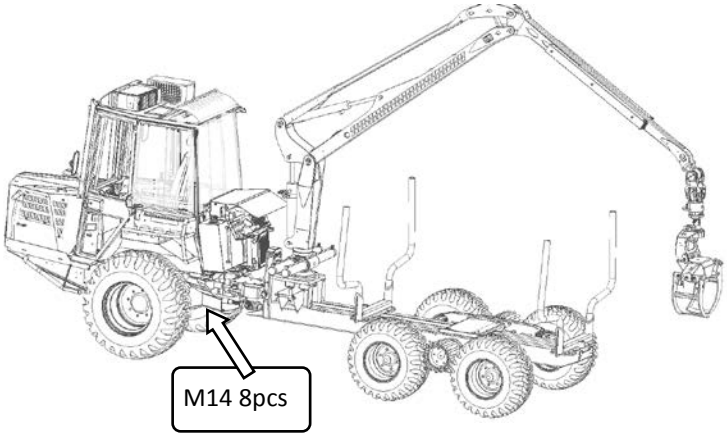
- 1 pc. M20
- 4 pcs. M18
- 2 pcs. M12



2.5 Rear section gearbox

Rear section gearbox/gearbox.

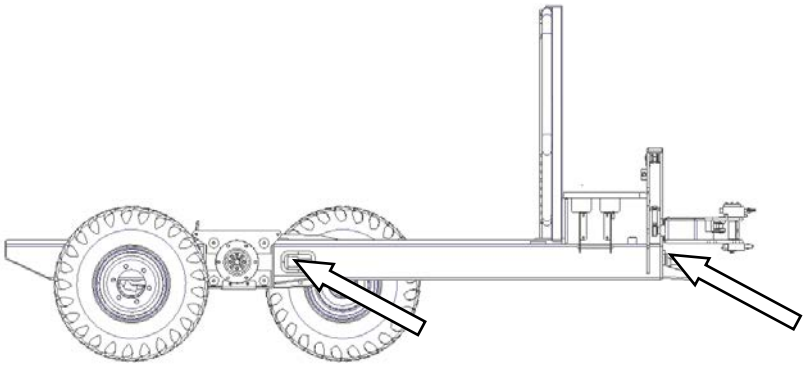
- 8pcs. M14



2.6 Drive shaft

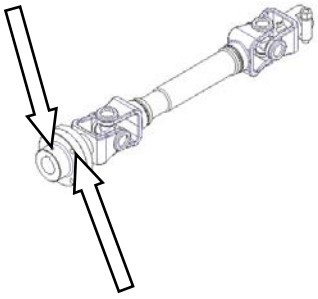
Check:

- 6pcs M8 CV joint pinion (behind the service hatch)
- 3pcs M10 bearing housing attachment



2.7 K axle

Stop screw and 4pcs shear screws.

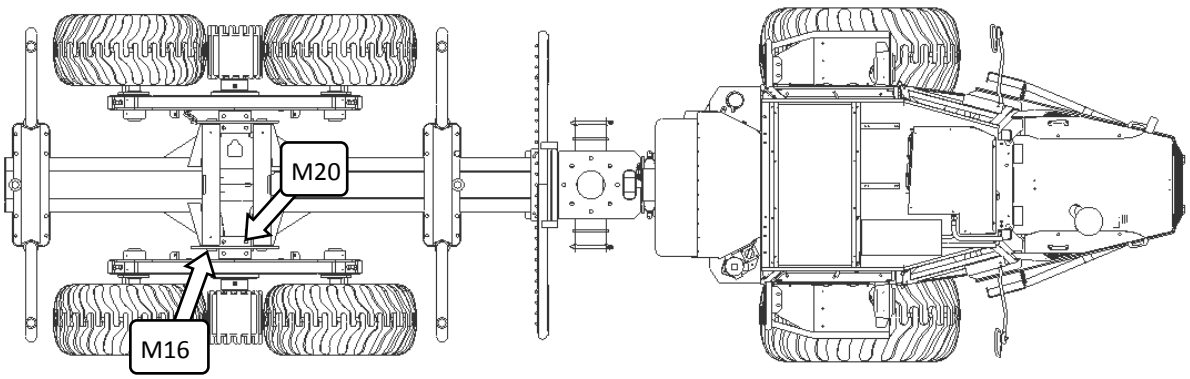


2.8 Trailer section

Remove the protective plate above the rear axle

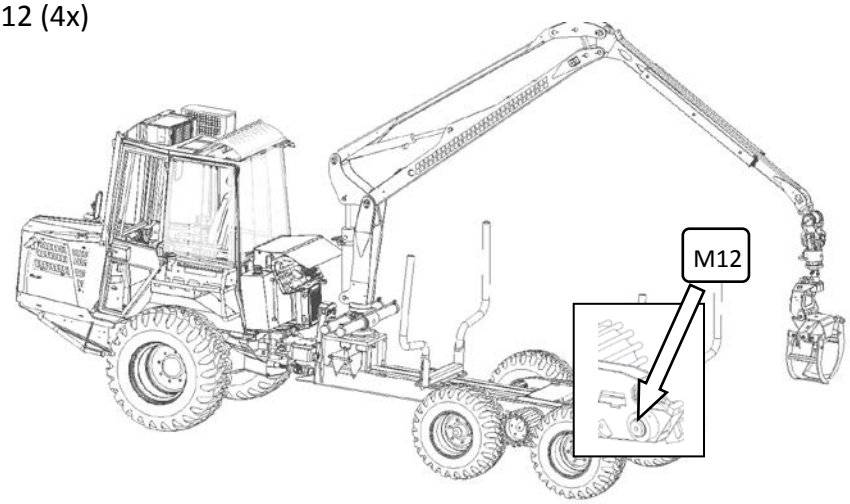
Check:

- 4 pcs. M20 through with lock nuts (2x).
- 4 pcs. M16 (2x).



2.9 Locking wheel axle, trailer section

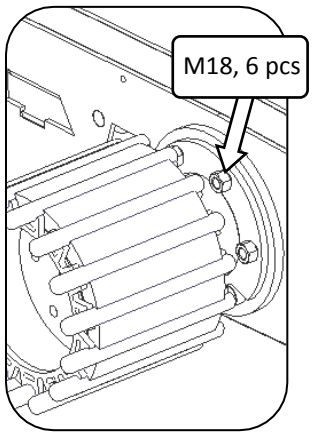
M12 (4x)



2.10 Bogie

Check:

- 6 pcs. M18
- Wear damage to the drive roller and wear-resistant rubber.



3 Battery

3.1 General

Battery acid is very corrosive.

Never short-circuit the battery poles. Risk of explosion.

Use protective clothing and eye protection when working with batteries and battery acid. If battery acid gets onto skin or clothes, flush with water immediately.

Do not disturb the battery cable shoes when the engine is running.

Check:

- Battery fixing.
- That the poles and cable shoes are adequately protected.
- That the battery poles have not oxidised. Clean when necessary. Use contact grease on the poles.

3.2 Charging

- Stopping the main circuit breaker.
- Remove the cable shoe on the minus pole and then on the plus pole.
- Connect the charging equipment according to the battery charger's manual.
- Refit in the reverse order. Use contact grease on the poles.

3.3 Battery change

- Stopping the main circuit breaker.
- Remove the cable shoe on the minus pole and then on the plus pole.
- Fit new batteries.

Refit in the reverse order. Use contact grease on the poles.

4 Engine

For complete service and maintenance instructions, see the engine's separate manual!

4.1 Follow the service instructions and intervals in the engine instruction manual.

4.2 Adjusting the valves

For valve adjustment instructions, see the workshop manual art. no.: 911055

5 Fluids

5.1 General

Check daily:

- That there are no leaks in the systems. Clean when necessary.
- That there are no damaged/broken hoses or connections. Change when necessary.

5.2 Coolant

Never open the lid to the radiator when the engine is warm. Risk of burns.

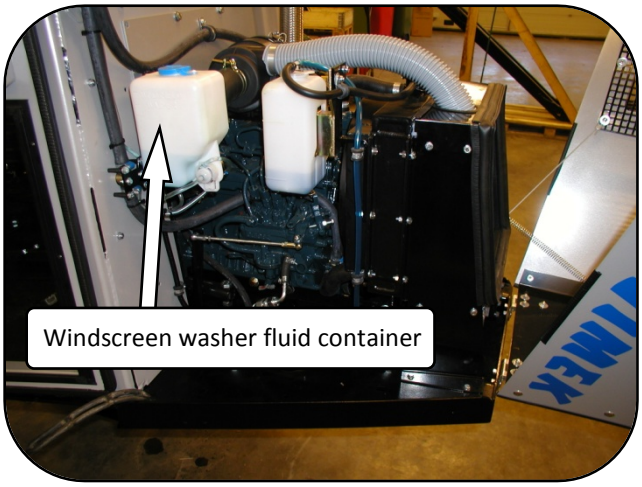
If propylene glycol is used, the coolant must be checked or changed at least once per year. Ready-mixed glycol is recommended.

Follow the service and handling instructions in the engine instruction manual.

5.3 Windscreen washer fluid

Top up as required.

Mix the correct amount of windscreen washer fluid/water for the outside temperature.



6 Oils

Old oil must always be managed and disposed of in accordance with applicable regulations.
Pay attention to cleanliness to avoid the introduction of dirt particles into the system.

The oils in a warm engine can be very hot. Risk of burns.

6.1 Check the engine oil

Check:

- Check the engine oil according to the instruction manual

6.2 Change the engine oil

- Change the engine oil according to the instruction manual

6.3 Hydraulic oil check/change

Carry out continuous oil analysis through your oil supplier, to ensure the condition of the oil.
Change when necessary.
Always fill the oil through a filter.
Change:

- Unscrew the oil plug under the hydraulic oil tank and collect the old oil.
- Screw the oil plug back in. Fill with new oil. See "Technical data" for the correct amount, and oil specifications for the correct type of oil.
- Check the oil level again after operating the hydraulic functions.

6.4 Check the hydraulic oil level

Check the level in the hydraulic oil tank using the dip stick. The level should be 5-10cm under the maximum tank volume.

The level can also be checked using the information menu on the instrument panel display. This shows 100% when the oil level is correct.

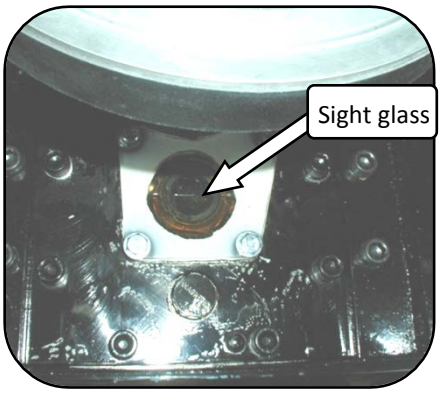
6.5 Gearbox oil check

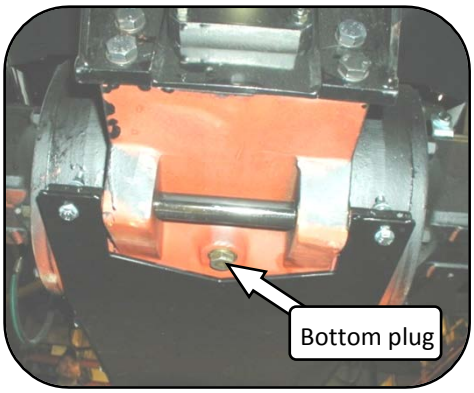
Check:

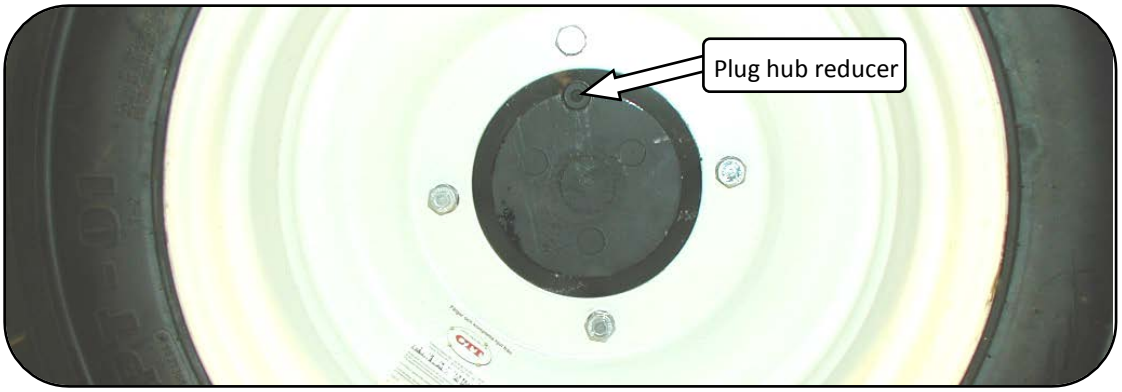
- Make sure the machine is on a level surface.
- Check the oil level in the sight glass on the front of the gearbox, under the transmission motor.
- Fill up as required, see "Change" below.

6.6 Gearbox oil change:

- Make sure the machine is on a level surface and with the hub reducers pointing downwards.
- Remove the protective plates from below the engine and gearbox.
- Unscrew the oil plug under the gearbox and plugs on the hub reducers and collect the old oil.
- Unscrew the magnetic plug. Metallic filings on the magnet can indicate gearbox damage. Contact your VIMEK dealer for an assessment.
- Screw back the oil plug under the gearbox and one of the plugs to the hub reducer.
- Turn the hub without the plug so that the drain ends up facing upwards, and fill the new oil through it.
  See "Technical data" and accompanying oil specifications for the correct amount and type of oil.
- Check the oil level in the sight glass on the front of the gearbox.
- Check that there are no leaks.







6.7 Drive shaft oil, trailer section

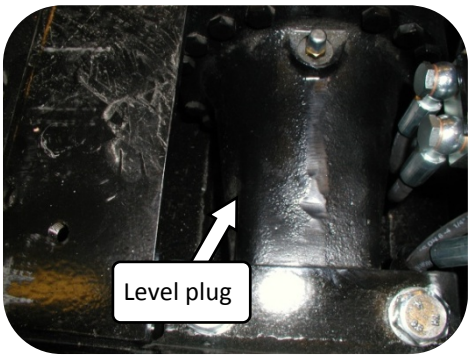
The drive shaft on the trailer has three check points, 2 on the planetary gear housing and 1 on the gear/brake housing.

Gear/Brake housing:

When checking and filling with oil in the shaft, the protective plate must be removed.

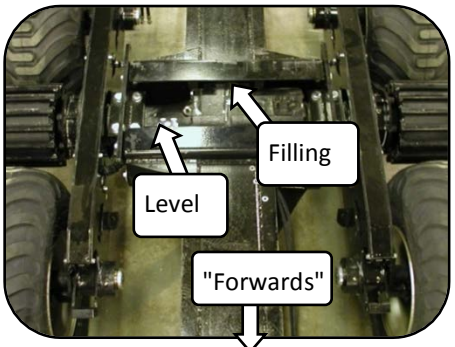
Check:

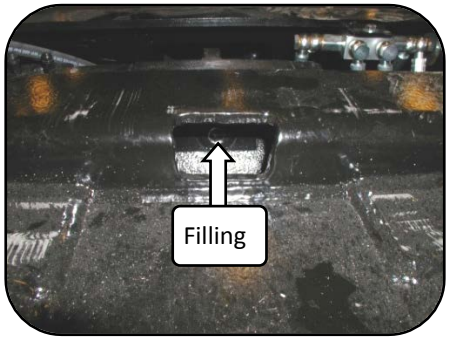
- Loosen the level plug. The oil level should be up to the level plug.
- Top up as required.

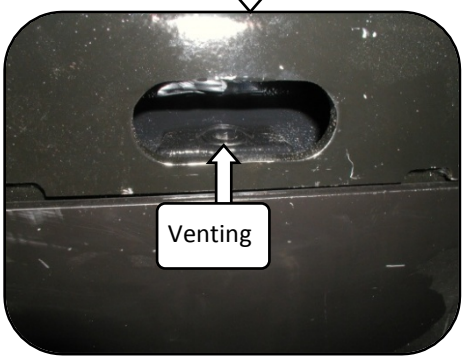


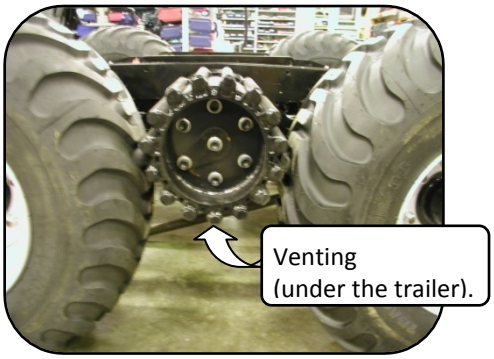
Change:

- Unscrew the drain plug and collect the old oil.
- Screw the oil plug back in.
- Screw off the bleed valve/filling.
- Unscrew the level plug.
- Fill with new oil up to the level plug. See "Technical data" for the correct amount and type of oil.
- Reassemble the plugs.
- Check that there are no leaks.



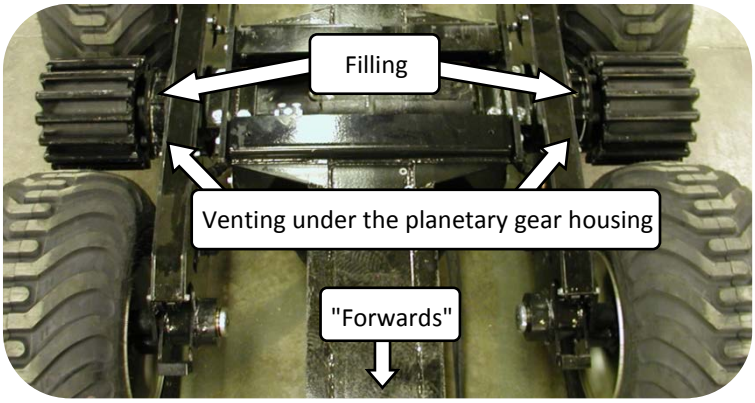






6.8 Planetary gear housing oil

During checking, filling and changing of oil in the planetary gear, it is not necessary to remove the protective plate.



Check:

- Remove the filler plug. The oil level should be up to the filler plug hole.
- Top up as required.

Change:

- Unscrew the drain plug and collect the old oil.
- Screw the oil plug back in.
- Unscrew the filler plug.
- Fill with new oil up to the filler plug. See "Technical data" and oil specifications for the correct amount and type of oil.
- Screw in the filler plug.
- Check that there are no leaks.

7 Filter

Pay attention to cleanliness to avoid the introduction of dirt particles into the systems.

7.1 Engine oil filter

Filter change:

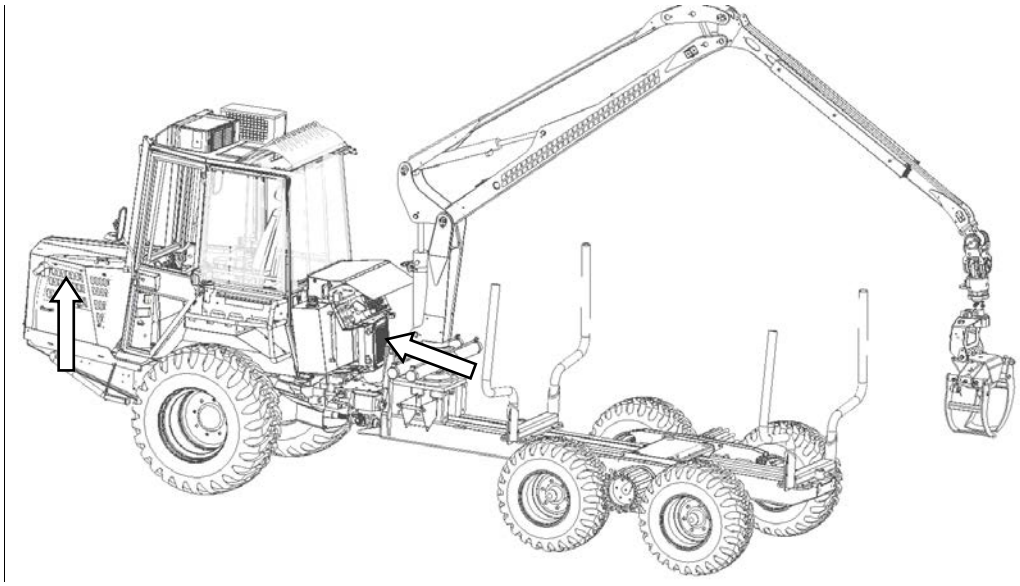
- Always replace the filter when changing the oil.
- Follow the instructions in the engine instruction manual.

7.2 Filter, hydraulic oil cooler.

The best way of cleaning the filter is by rinsing it with water. Replace the filter when it becomes difficult to clean or is damaged. If necessary, blow the cooler element clean using compressed air or wash with water. A dirty cooler is the most common cause of hydraulic oil overheating.

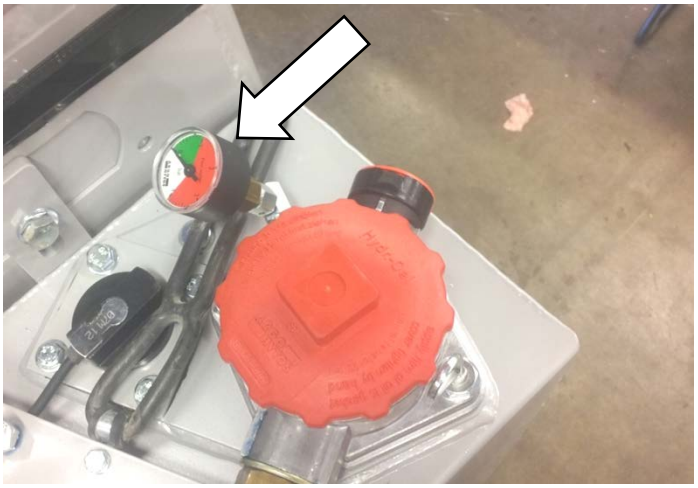
7.3 Filter hub sides

Check and, if necessary, clean the filters in the hub sides. The best way of doing this is by rinsing with water. Replace the filter when it becomes difficult to clean or is damaged.



7.4 Hydraulic oil filter check

There are 2 hydraulic oil filters. A return oil filter for all the circulating oil in the system and a fine filter for the transmission circuit oil.



The return oil filter functionality is tested when the oil reaches normal operating temperature. At full engine speed, the manometer mounted on the return oil filter should not enter the red field.

7.5 Breather filter check

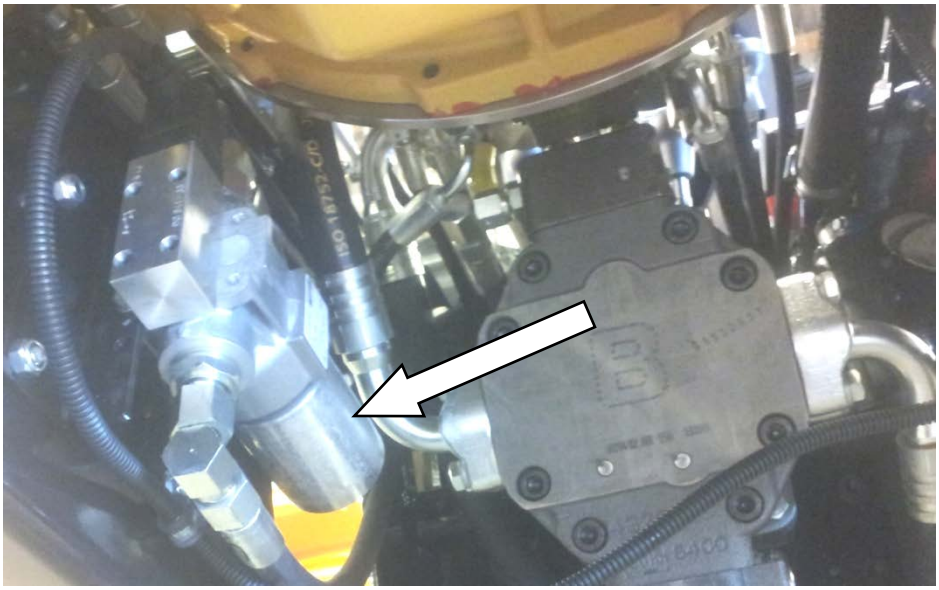
A visual check of the breather filter mounted on the return oil filter.

7.6 Fine filter circuit check.

An indication lamp lights on the instrument panel display when the filter is 75% used.

7.7 Filter, fine filter circuit, change.

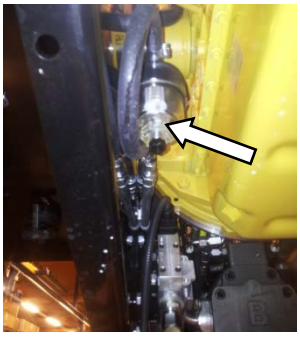
Remove the filter cup and change the filter insert.



7.8 Diesel filter change

Filter change:

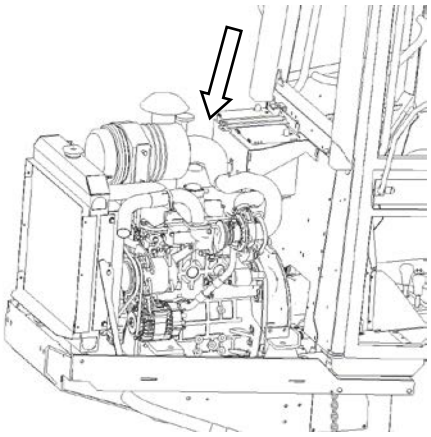
- Close the diesel filter stopcock.
- Empty the water separator as necessary.
- Loosen the filter. Pay attention to cleanliness.
- Fit a new filter.
- Vent the diesel system; see the section in the engine instruction manual.



7.9 Checking and cleaning engine cooler

Open the bonnet to best be able to clean. If necessary, blow the cooler element clean using compressed air or wash with water. A dirty radiator is the most common cause of engine overheating.

7.10 Check air filter and coarse filter air can.

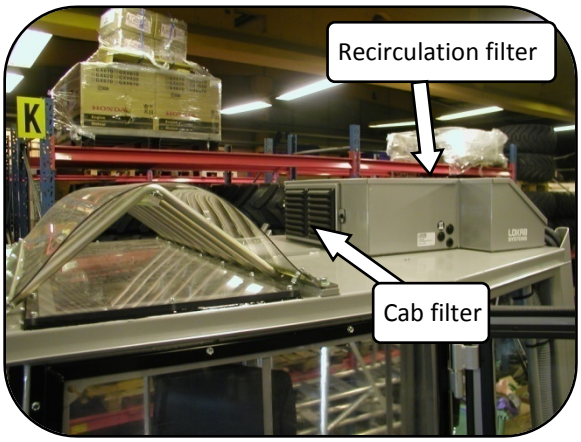


Check hoses and hose connections. If the engine is able to draw air through leaks, it may result in engine damage. Replace the element if the filter indicator shows a pressure drop

7.11 Cab filter

The filter is placed on the cab ceiling. Change or clean the filter.
The recirculation air filter is placed in the fan box; remove the cover to change the filter.
Check:

- That the filter is clean and intact. Change when necessary.



8 Brake system

Be aware that the brakes are out of function during this procedure.

The brakes must be adjusted if they are uneven or feel light.

The brakes must be adjusted on both sides for a more even braking effect.

This task should be done by two persons.

8.1 Driving brake

Check:

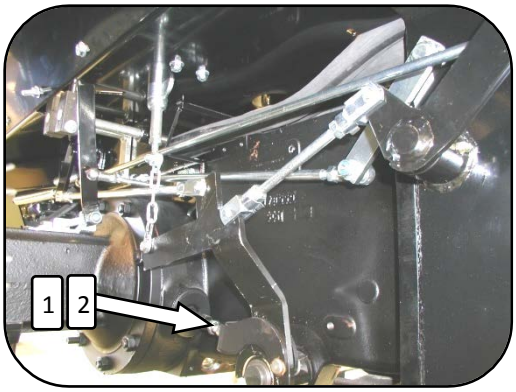
- Brake effect. Adjust when necessary.

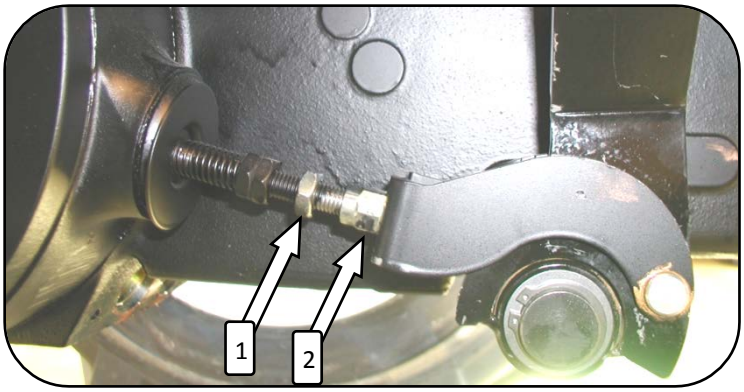
Adjustment (Adjust one side at a time):

- Lift up the machine so that both front wheels can turn freely.
- Loosen lock nut "1".
- Place the gearbox and high/low range gearbox in neutral.
- Start the engine, place the drive direction selector (inching lever) in reverse and run the engine at high speed until the "toad" indicator on the display lights.
- While the "toad" is lit on the display: Screw in adjusting screw "2" until the wheel can no longer move. Loosen slightly so that the wheel turns freely.
- Tighten lock nut "1".

Repeat the above process on the other side.

- Test drive and check the brakes' function and that they engage evenly.





8.2 Parking brake

Check:

- Brake effect. If the braking effect is poor, fault tracing must be carried out.

8.3 Trailer brake

- The trailer wheels can automatically run against the drive roller when the brakes are applied; risk of clamp injury.

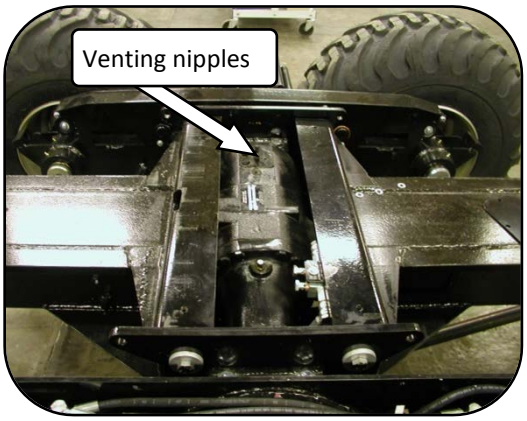
Check:

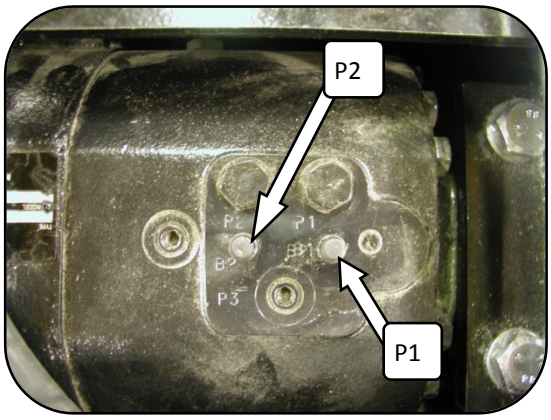
- Brake effect. Adjust/vent when necessary.

8.4 Venting/oil change brake system:

- Place the gearbox and high/low range gearbox in neutral.
- Start the engine, place the drive direction selector (inching lever) in reverse and run the engine at high speed until the "toad" indicator on the display lights.
- Place a hose between the air nipple and a spill oil container.
- While the "toad" is lit on the display: Open venting nipple "P1" a small amount. Release about 2 dl oil.
- Allow the engine to idle, apply the brake lever, open the venting nipple "P2" slightly. Release about 2 dl oil.

Nipple "P1" is the parking brake and "P2" is the driving brake.





9 Tyres

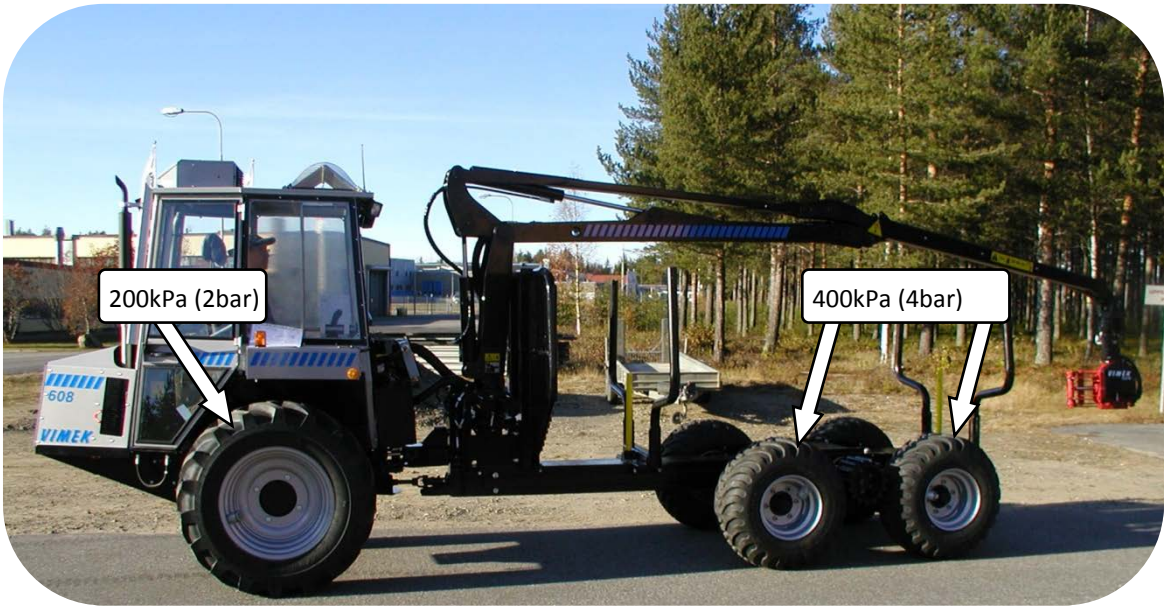
9.1 Damage

- Check tyres visually.

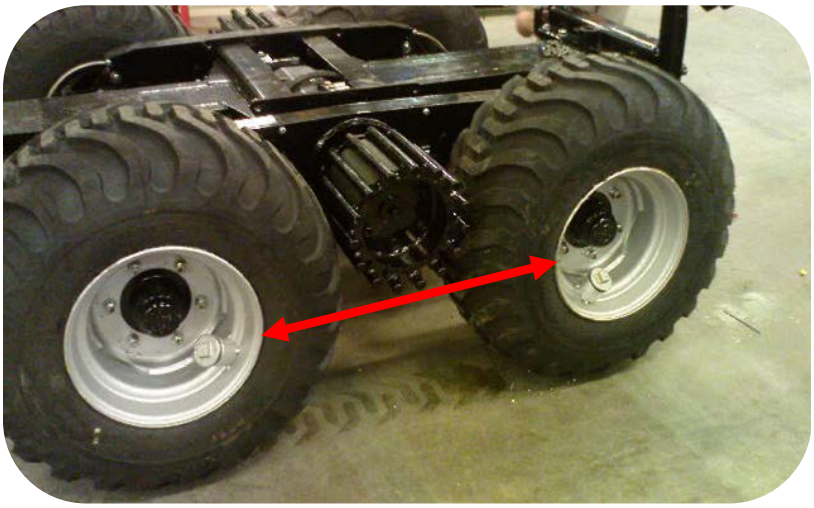
9.2 Air pressure

Check:

- Cab section: 200kPa (2bar)
- Trailer section: 400kPa (4bar)



9.3 Wheel jamming pressure



The wheel's jamming pressure should be such that the roller does not skid towards the wheel, except if there is an extreme load or very slippery, e.g. wet snow or muddy. The base value is 655 mm between the inside of the highest corner of the rims. If the roller slips, the pressure must be increased with the adjusting screws; higher pressure than necessary should be avoided as it can cause the machine to roll more heavily.

10 Safety equipment

10.1 Fire extinguisher

Check daily:

- Pressure in the fire extinguisher. The extinguisher's manometer must be within the green markings.

10.2 Sprinkler equipment

Sprinkler equipment is an additional option.

- Follow the instructions in the separate sprinkler system instruction manual.

10.3 Safety belt

A safety belt is an additional option.

Check daily:

- That the belt locks, by pulling abruptly on it.
- That there is no damage to the belt.

11 Diesel heater

The diesel heater is an additional option.

11.1 General

Check daily, when in use:

- That the parts surrounding the heater are clean and well-ventilated. Risk of fire! Clean when necessary.

12 Maintenance schedule

12.1 Daily inspection

Inspect the machine and crane daily in respect of safety and function.
Daily inspection, lubrication and simple repairs can be carried out by the driver.
Pay particular attention to:

- Noticeable defects or changes to the outside of the machine, e.g. cracks or damage in supporting parts.
- Leakage from the hydraulic system, damage to hoses or cables.
- Leakage from the engine.

In dusty situations, the air filter, cab filter and cooler filter must be checked daily.

If the diesel heater is used, the area around the heater exhaust system must be cleaned daily. Risk of fire.

The service instructions for some points may be described in a different service manual.

Cooling system coolant level	See separate Engine manual
Air purifier	See separate Engine manual
Engine oil level	See separate Engine manual
Water sediment draining	See separate Engine manual
Alternator/fan belt	See separate Engine manual
7.2. Filter, oil cooler	
7.3. filter, hub sides	
7.4 Check hydraulic oil filter	
7.5 Check breather filter	
7.9 Check radiator	
7.10 Check air filter	
7.11 Check cab filter	
9.1 Tyre damage	
9.2 Air pressure	
10.1 Fire extinguisher	
11 Diesel heater	

12.2 Maintenance schedule

	1st service	25 hrs	50 hrs	100 hrs	250 hrs	500 hrs	1000 hrs / Annually	Separate manual
1. Lubrication points								
1.1 Centre link	X	x						
1.2 Stabilisation cylinder	X		X					
1.3 Control cylinder	X	x						
1.4 Transmission shaft	X		X					
1.5 Drive roller mechanism	X		x					
1.6 Wheel bearings, trailer section	X		X					
1.7 Rotator and link	X		X					
1.8 Grapple	X		X					
1.9 Tiltable grapple	X		X					
1.10 Crane	X							X
2. Bolted joint								
2.1 Wheels, cab section	X					X		
2.2 Wheels, trailer section	X					X		
2.3 Crane foot	X				x		x	
2.4 Centre link	X				X		x	
2.5 Rear section gearbox	X				X		x	
2.6 Drive shaft	x				x		x	
2.7 K axle	x						x	
2.8 Trailer lock	X						x	
2.9 Wheel axle	x						x	
2.10 Bogie	x						X	
3. Battery								
3.1 General	X						X	
4 Engine								
4.1 Engine maintenance	X	x	x	x	x	x	X	x

	1st service	25 hrs	50 hrs	100 hrs	250 hrs	500 hrs	1000 hrs / Annually	Separate manual
6. Oils								
6.2 Change engine oil	x					x		
6.4 Check hydraulic oil level	x	x						
6.6 Gearbox oil change	x						X	
6.7 Drive axle oil change	x						X	
6.8 Planetary gear oil change	x						x	
7. Filter								
7.1 Engine oil filter change	X					x		
7.3 Diesel filter change	x					X		
8. Brakes								
8.1 Driving brake	X						x	
8.2 Parking brake	X						x	
9. Tyres								
9.2 Air pressure	X					x		
9. Tyres								
9.2 Wheel clamping force	x							
10. Battery								
10.1 General	X					x		
12. Daily inspection								
12.1	X							